

INFORMATION DISCLOSURE CITATION IN AN APPLICATION

 ATTY. DOCKET NO.
43888-098

 SERIAL NO.
09/807,692

 APPLICANT
Motokazu WATANABE, et al.

 FILING DATE
April 17, 2001

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1753

(PTO-1449)

U.S. PATENT DOCUMENTS

EXAMINER'S INITIALS	CITE NO.	Document Number Number-Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
Q.N.		US 6,059,946	05/09/2000	Yugawa, et al.	
Q.N.		US 5,424,204	06/13/1995	Aoyama, et al.	
Q.N.		US 5,820,551	10/13/1998	Hill, et al.	
Q.N.		US 5,682,884	11/04/1997	Hill, et al.	
Q.N.		US 5,554,339	09/10/1996	Cozzette, et al.	
Q.N.		US 5,466,575	11/14/1995	Cozzette, et al.	
Q.N.		US 5,334,508	08/02/1994	Hoenes	
Q.N.		US 4,711,245	12/08/1987	Higgins, et al.	
Q.N.		US 5,762,770	06/09/1998	Pritchard, et al.	
Q.N.	B1	US 6,270,637	08/07/2001	Crismore, et al.	
Q.N.		US 4,545,382	10/08/1985	Higgins, et al.	
Q.N.		US 6,071,391	06/06/2000	Gotoh, et al.	
Q.N.		US 6,025,203	02/15/2000	Vetter, et al.	
Q.N.		US 5,378,628	01/03/1995	Gratzel, et al.	
Q.N.		US 5,804,047	09/08/1998	Karube, et al.	
Q.N.		US 6,077,660	06/20/2000	Wong, et al.	
Q.N.		US 5,997,817	12/07/1999	Crismore, et al.	

FOREIGN PATENT DOCUMENTS

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						Yes	No
Q.N.		JP 10-227755	08/25/1998			X	
Q.N.		EP 0 744 466 A2	11/27/1996	Azzoni, et al.			
Q.N.		EP 0 735 363 A1	10/02/1996	Yoshioka, et al.			
Q.N.		EP 0 636 879 A2	02/01/1995	Yamamoto, et al.			
Q.N.		EP 0 502 504 A1	09/09/1992	Yoshioka, et al.			
Q.N.		EP 0 872 728 A1	10/21/1998	Yukawa, et al.			
Q.N.		JP 9-140378	06/03/1997	Adachi, et al.		abstract	
Q.N.		EP 0 357 027 A2	03/07/1990	Hayashi, et al.			

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

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		CAPLUS MASLINSKA-SOLICH "Maleic Anhydride Copolymers in Clinical Analysis" <i>Chemia Stosowana</i> (1990), 34 (1-2, 11-22).
an		WILSON, et al. "Review Article: Glucose Oxidase: an Ideal Enzyme" <i>Biosensors & Bioelectronics</i> 7 (1992) 165-166.
an		MATSUSHITA, et al. "Bacterial Quinoproteins Glucose Dehydrogenase and Alcohol Dehydrogenase" <i>Principles and Applications of Quinoproteins</i> , ed. Victor L. Davidson (1992) 47-63.
an		SHUL'GA, et al. "The Effect of Divalent Metal Ions on the Performance of a Glucose-Sensitive ENFET Using Potassium Ferricyanide as an Oxidising Substrate" <i>Sensors and Actuators B</i> 26-27 (1995) 432-435.
an		CAPLUS KAWAGURI , et al. "Biosensor for Microanalysis of Body Fluids." JP 02102448 A2
an		JAPI MARIKO , et al. "Biosensor." JP 02102448 A
an		"2,4,6-Collidine" <i>Encyclopedia of Reagents for Organic Synthesis</i> .
an		"Colicins" and "Bacteriocins" <i>Encyclopedia of Molecular Biology and Molecular Medicine</i> .
an		GOODWIN, et al. "The Biochemistry, Physiology and Genetics of PQQ and PQQ-containing Enzymes" <i>Advances in Microbial Physiology</i> vol. 40, ed. R.K. Poole (1998) 1-80.
an		YOSHIOKA, et al. "Disposable Biosensor Based on Bioelectrochemistry" <i>National Technical Report</i> vol. 42 no. 2 (April 1996) 71-75.
an		CAPLUS CUCINOTTA , et al. "Three-Dimensional Cyclodextrin: a New Class of Hosts by Trehalose Capping of .beta.-cyclodextrin." <i>J. Inclusion Phenom. Mol. Recognit. Chem.</i> (1996) 25(1-3, 39-42).
an		CAPLUS TAKAHASHI , et al. "Effect of a Trehalase Inhibitor, Validoxylamine A, on Three Species of Flies" <i>Appl. Entomol. Zool.</i> (1995), 30(1, 231-239).
an		YOSHIDA, et al. "Thr424 to Asn Substitution Alters Bivalent Metal Specificity of Pyrroloquinoline Quinone Glucose Dehydrogenase" 1997, <i>J. Biochem. Mol. Biol. & Biophys.</i> , Vol. 1, pp. 89-93.
an		WITARO, et al. "Secondary Structure Study of Pyrroloquinoline Quinone Glucose Dehydrogenase" 1999, <i>J. Biochem. Mol. Biol. & Biophys.</i> , Vol. 1, pp. 209-213.

EXAMINER

Ally Nagasawa

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8/29/03

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EXAMINER'S INITIALS	CITE NO.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
an	-	SODE, et al. "Glu742 Substitution To Lys Enhances The EDTA Tolerance of Escherichia Coli PQQ Glucose Dehydrogenase" 1994, Biotechnology Letters, Vol. 16, No. 5, pp. 455-460.
an	-	WITARO, et al. "Site-Directed Mutagenesis Study on the Thermal Stability of a Chimeric PQQ Glucose Dehydrogenase and Its Structural Interpretation" 1999, Applied Biochemistry and Biotechnology, Vol. 77-79, pp. 159-168.
an	-	LAURINAVICIUS, et al. "Oxygen Insensitive Glucose Biosensor Based on PQQ-Dependent Glucose Dehydrogenase" 1999, Analytical Letters, Vol. 32(2), pp. 299-316.
an	-	MATSUSHITA, et al. "Soluble and Membrane-bound Quinoprotein D-Glucose Dehydrogenases of the <i>Acinetobacter calcoaceticus</i> : The Binding Process of PQQ to the Apoenzymes" 1995, Biosci. Biotech. Biochem, Vol. 59(8), pp. 1548-1555.
an	-	MATSUSHITA, et al. "Membrane-bound D-Glucose Dehydrogenase from <i>Pseudomonas</i> sp.: Solubilization, purification and Characterization" 1980, Agric. Biol. Chem, Vol. 44(7), pp. 1505-1512.
an	-	AMEYAMA, et al. "Purification and Characterization of the Quinoprotein D-Glucose Dehydrogenase Apoenzyme from <i>Escherichia coli</i> " 1986, Agric. Biol. Chem, Vol. 50(1), pp. 49-57.
an	-	AMEYAMA, et al. "D-Glucose Dehydrogenase of <i>Glucobacter suboxydans</i> : Solubilization, Purification and Characterization" 1981, Agric. Biol. Chem., Vol. 45(4), pp. 851-861.
an	-	HAUGE, Jens G. "Glucose Dehydrogenase of <i>Bacterium anitratum</i> : an Enzyme with a Novel Prosthetic Group" 1964, Vol. 239, No. 11, pp. 3630-3639.
an	-	SODE, et al. "Subzero Temperature Operating Biosensor Utilizing an Organic Solvent and Quinoprotein Glucose Dehydrogenase" 1993, Biotechnology and Bioengineering, Vol. 42, pp. 251-254.
an	-	IKEDA, et al. "Electrochemical Monitoring of In Vivo Reconstitution of Glucose Dehydrogenase in <i>Escherichia coli</i> Cells With Externally Added Pyrroloquinoline Quinone" 1998, Journal of Electroanalytical Chemistry, Vol. 449, pp. 219-224.
an	-	D'COSTA, et al. "Quinoprotein Glucose Dehydrogenase and its Application in an Amperometric Glucose Sensor" 1986, Biosensors, Vol. 2, pp. 71-87.
an	-	DEWANTI, et al. "Ca ²⁺ -Assisted, Direct Hydride Transfer, and Rate-Determining Tautomerization of C5-Reduced PQQ to PQQH ₂ in the Oxidation of β-D-Glucose by Soluble, Quinoprotein Glucose Dehydrogenase" 2000, Biochemistry 2000, Vol. 39 pp. 9384-9392.
an	-	SODE, et al. "Construction and Characterization of a Chimeric <i>Escherichia coli</i> PQQ Glucose Dehydrogenase (PQQGHD) with Increased EDTA Tolerance", 1997, <i>Denki Kagaku</i> , Vol. 65, No. 6, pp. 444-451
an	-	YAMAZAKI, et al. "Increased Thermal Stability of Glucose Dehydrogenase by Cross-Linking Chemical Modification" 1999, Biotechnology Letters, Vol. 21, pp. 199-202.

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DATE CONSIDERED

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Ch	-	SODE, et al. "Construction and Characterization of A Linked-Dimeric Pyrroloquinoline Quinone Glucose Dehydrogenase" 1999, Biotechnology Letters, Vol. 21, pp. 707-710.
Ch	-	SODE, et al. "Stabilization of Pyrroloquinoline Quinone Glucose Dehydrogenase By Cross-Linking Chemical Modification" 1996, Biotechnology Letters, Vol. 18, No. 9, pp. 997-1002.
Ch	-	SODE, et al. "Preparation of Lyophilized Pyrroloquinoline Quinone Glucose Dehydrogenase Using Trehalose As An Additive" 1997, Biotechnology Techniques, Vol. 11, No. 8, pp. 577-580.
Ch	-	SODE, et al. "Over Expression of PQQ Glucose Dehydrogenase in Escherichia Coli Under Holo Enzyme Forming Condition" 1994, Vol. 16, No. 12, pp. 1265-1268.
an	-	SODE, et al. "Elucidation of The Region Responsible For Edta Tolerance In PQQ Glucose Dehydrogenases By Construction Escherichia Coli and Acinetobacter Calcoaceticus Chimeric Enzymes" 1995, Biochemical and Biophysical Research Communications, Vol. 211, No. 1, pp. 268-273.
an	-	SODE, et al. "A Novel Thermostable Glucose Dehydrogenase Varying Temperature Properties By Altering Its Quaternary Structures" 1996, Enzyme and Microbial Technology, Vol. 19, pp. 82-85.
Ch	-	SODE, et al. "Thermostable Chimeric PQQ Glucose Dehydrogenase" 1995, Federation of European Biochemical Societies Letters, Vol. 364, pp. 325-327.
an	-	SODE, et al. "Increased Production of Recombinant Pyrroloquinoline Quinone (PQQ) Glucose Dehydrogenase By Metabolically Engineered Escherichia Coli Strain Capable of PQQ Biosynthesis" 1996, Journal of Biotechnology, pp. 239-243.
an	-	SODE, et al. "Effect of PQQ Glucose Dehydrogenase Overexpression In Escherichia Coli On Sugar-Dependent Respiration" 1995, Journal of Biotechnology, Vol. 43, pp. 41-44.
an	-	OLSTHOORN, et al. "Negative Cooperativity In The Steady-State Kinetics of Sugar Oxidation By Soluble Quinoprotein Glucose Dehydrogenase From Acinetobacter Calcoaceticus" 1998, Eur. J. Biochem, pp. 255-261.
Ch	-	MARTIN, et al. "High Current Density "Wired" Quinoprotein Glucose Dehydrogenase Electrode" 1993, Analytical Chemistry, Vol. 65, No. 3, pp. 238-241.
Ch	-	YOSHIDA, et al. "Engineering a Chimeric Pyrroloquinoline Quinone Glucose Dehydrogenase: improvement of EDTA tolerance, thermal stability and substrate specificity" 1999, Protein Engineering, Vol. 12, No. 1, pp. 63-70.
Ch	-	SODE, et al. "Improved Substrate Specificity and Dynamic Range For Glucose Measurement of Escherichia Coli PQQ Glucose Dehydrogenase By Site Directed Mutagenesis" 1997, Biotechnology Letters, Vol. 19, No. 11, pp. 1073-1077.
an	-	YAMAZAKI, et al. "Subunit Analyses of a Novel Thermostable Glucose Dehydrogenase Showing Deifferent Temperature Properties According to Its Quaternary Structure" 1999 Applied Biochemistry and Biotechnology, Vol. 77-79, pp. 325-335.

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Ch	—	DOKTER, et al. "Cytochrome b-562 from Acinetobacter Calcoaceticus L.M.D. 79.41" 1988, Biochem J., Vol. 254, pp. 131-138.
AM	—	SOE, et al. "Isolation of a Marine Bacterial Pyrroloquinoline Quinone-Dependent Glucose Dehydrogenase" 1995, J. Mar. Biotechnol, Vol. 2, pp. 214-218.
Ch	?	GEERLOF, et al. "Haem-Containing Protein Complexes of Acinetobacter Calcoaceticus As Secondary Electron Acceptors for Quinoprotein Glucose Dehydrogenase" 1989, Antonie van Leeuwenhoek, Vol. 56, pp. 81-84.
Ch	—	JIN, et al. "PQQ as Redox Shuttle for Quinoprotein Glucose Dehydrogenase" 1998, Biol. Chem., Vol. 379, pp. 1207-1211.
Ch	—	HAUGE, Jens G. "Kinetics and Specificity of Glucose Dehydrogenase From Bacterium Anitratum" 1960, Biochim. biophys. Acta, Vol. 45, pp. 263-269.
Ch	—	OU BRIE, et al. "The 1.7 A Crystal Structure of the Apo Form of the Soluble Quinoprotein Glucose Dehydrogenase from Acinetobacter calcoacetus Reveals a Novel Internal Conserve Sequence Repeat" 1999, Vol. 289, pp. 319-333.
Ch	—	HAUGE, Jens G. "Purification and Properties of Glucose Dehydrogenase and Cytochrome b from Bacterium Anitratum" 1960, Biochim. Biophys. Acta, Vol. 45, pp. 250-262.
Ch	—	WANNER, et al. "First Experimental Structure of a 1:1 Metal Complex with a PPQ Cofactor Derivative Ouside Dehydrogenase Enzymes" 1999, Inorganic Chemistry, Vol. 38, No. 11, pp. 2753-2755.
Ch	✓	DEWANTI, et al. "Reconstitution of Membrane -Integrated Quinoprotein Glucose Dehydrogenase Apoenzyme with PQQ and the Holoenzyme's Mechanism of Action" 1998, Biochemistry, Vol. 37, No. 19, pp. 6810-6818.
Ch	✓	ALKASRAWI, et al. "A Redox Hydrogel Integrated PQQ-Glucose Dehydrogenase Based Glucose Electrode" 1999, Anal. Communication, Vol. 36, pp. 395-398.
Ch	✓	MOR, et al. "Assay of Glucose Using an Electrochemical Enzymatic Sensor" 1977, Analytical Biochemistry, Vol. 79, pp. 319-328.
Ch	—	DUINE, et al. "Glucose Dehydrogenase From Acinetobacter Calcoaceticus" FEBS Letters, 1979, Vol. 108, No. 2, pp. 443-446.
Ch	—	ISWANTINI, et al. "Electrochemical Measurements of Glucose Dehydrogenase Activity Exhibited By Escherichia Coli Cells; Effects of the Additions of Pyrroloquinoline Quinone, Magnesium or Calcium Ions and Ethylenediaminetetraacetic Acid" 1998, Bioelectrochemistry and Bioenergetics, Vol. 46, pp. 249-254.
Ch	—	MATSUSHITA, et al. "Quinoprotein D-glucose Dehydrogenases in Acinetobacter Calcoaceticus LMD 79.41: Purification and Characterization of the Membrane-Bound Enzyme Distinct from the Soluble Enzyme" 1989, Antonie van Leeuwenhoek, Vol. 56, pp. 63-72.
Ch	—	COZIER, et al. "Structure of the Quinoprotein Glucose Dehydrogenase of Escherichia Coli Modelled on that of Methanol Dehydrogenase from Methylobacterium Exorquens" 1995, Biochem. J., Vol. 312, pp. 679-685.
Ch	—	SOE, et al. "Preparation of Lyophilized Pyrroloquinoline Quinone Glucose Dehydrogenase Using Trehalose as an Additive" 1997 Biotechnology Techniques Vol. 11, No. 8, pp. 577-580.
Ch	—	"Glucose Oxidase" Toyobo Enzymes (1998).

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